

Application No. 10/697,664
Amendment dated April 19, 2006
Reply to Office Action of October 20, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a distal end adapted to cooperatively engage the plunger tip, an opposite proximal end adapted to cooperatively engage the plunger rod, and a length between said distal end and said proximal end, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said distal end of said adapter being open to form a portion of a cooling chamber and to permit the coolant to directly contact an interior surface of the plunger tip that forms a portion of the cooling chamber, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
2. (original) The adapter of claim 1, wherein said at least one passage of said adapter is an axial bore.
3. (original) The adapter of claim 2, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.
4. (original) The adapter of claim 1, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
5. (original) The adapter of claim 1, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end of said adapter.
6. (original) The adapter of claim 1, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.

Application No. 10/697,664
Amendment dated April 19, 2006
Reply to Office Action of October 20, 2005

7. (original) The adapter of claim 1, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.

Claims 8-22 (cancelled).

23. (new) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a threaded distal end adapted to cooperatively engage the plunger tip to maintain said adapter and the plunger tip in fixed relationship to one another, an opposite proximal end adapted to cooperatively engage the plunger rod, and a length between said distal end and said proximal end, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
24. (new) The adapter of claim 23, wherein said at least one passage of said adapter is an axial bore.
25. (new) The adapter of claim 24, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.
26. (new) The adapter of claim 23, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
27. (new) The adapter of claim 23, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end of said adapter.
28. (new) The adapter of claim 23, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.
29. (new) The adapter of claim 23, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.

Application No. 10/697,664
Amendment dated April 19, 2006
Reply to Office Action of October 20, 2005

30. (new) An adapter for cooperatively engaging a plunger tip and a plunger rod for forcing molten metal from a shot sleeve into a die of a die-casting apparatus, said adapter comprising a distal end adapted to cooperatively engage the plunger tip, an opposite proximal end adapted to cooperatively engage the plunger rod, and a length between said distal end and said proximal end, said adapter having at least one passage extending from said proximal end to said distal end to permit the flow of coolant there through, said adapter having a maximum cross-sectional dimension transverse to the length of said adapter, said distal end having a cross-sectional dimension transverse to the length of said adapter that is less than said maximum cross-sectional dimension, said distal end having a generally cylindrical cross section along at least a portion of the length, said adapter being formed of a beryllium-copper alloy to facilitate the transfer of heat from the plunger tip to the coolant passing through said passage of said adapter.
31. (new) The adapter of claim 30, wherein said at least one passage of said adapter is an axial bore.
32. (new) The adapter of claim 31, wherein said axial bore of said adapter is along a mid-longitudinal axis of said adapter.
33. (new) The adapter of claim 30, wherein said at least one passage of said adapter is generally uniform in cross section along the length of the adapter.
34. (new) The adapter of claim 30, wherein said at least one passage of said adapter has an enlarged cross section adjacent said distal end of said adapter.
35. (new) The adapter of claim 30, wherein said at least one passage of said adapter has a frusto-conical shape adjacent said distal end of the adapter to facilitate the flow of coolant through said passage and to increase the size of the cooling chamber available to cool the plunger tip.
36. (new) The adapter of claim 30, further comprising an o-ring between said adapter and the plunger tip and an o-ring between said adapter and the plunger rod.